

**COACHING SCHEDULE FOR PRE-PLANTING PERIOD ON CONTRACT FARMING OF POTATO FOR EXPORT (REVISED)**

Place	Date
Bogra	10.11.06
Saidpur & Birgonj	11.11.06
Rangpur- 1	12.11.06
Rangpur- 2	12.11.06

<b>Time</b>	<b>Session</b>	<b>Topics</b>	<b>Resource Person</b>
9.30-9.45		Registration of Participants	Mr. Nuruzzaman Co-Ordinator, GARI
9.45-10.30	Session- 1	Botanical description of the Potato Plant (Haulm, Roots, Skin, Sprout & Tubers)	Co-Ordinator & Expert Farmers
10.30-11.15	Session- 2	Land preparation, fertilizer application, placement of seed potato in furrows, spacing requirements for production of big size potato for export	Do
11.15-11.30		Tea Break	
11.30-12.15	Session- 3	Potato varieties, for planting, sprouting (dormancy breaking) and cutting into pieces to minimize seed cost and uneven germination (to be demonstrated)	Do
12.15-13.45	Session- 4	Practical demonstration in the field and discussion (Land preparation, fertilizer application in bands, preparation of seed potato, placement of seed in furrows.)	Do NB: Potato Consultant & Co-Ordinator of Katalyst will supervise at least one coaching during pre planting period.
13.45-		Lunch & Program Ends.	

## **Session No. 1: Botanical description of the Potato Plant (Haulm, Roots, Skin, Sprout & Tubers)**

**Objective of the session** : At the end of the session, the trainees will be able to learn.

- Function of stems Leaves in manufacturing food; they will be careful so that these are not damaged at the time of field work.
- Function of roots for intake of nutrients from soil. They will be careful at the time of field work so that roots are not damage.
- Function of stolons for production of tubers which determines yield of Potatoes/acre. The trainees will be careful so that proper earthing up are done.

**Materials needed:** Flip Chart, chalk board with chalk and duster, Pointing stick, colored pictures.

**Duration** : 45 minutes

Step-wise conduct of the session

1. The facilitator will introduce himself by starting his background and relation/experience in the related field. Then he will be oriented with the trainees by asking their identities and involvement in the field, the facilitator may ask for their interest in knowing about the topics ( 5minutes)
2. The facilitator asks participants to describe the different parts of a portato plan. He listens to responses and completes as necessary (ref to technical notes) The facilitator will introduce the topics by starting about the various parts of a potato plant and their function in relation to production of potatoes (15 minutes) by showing the picture through flip chart and will explain details to the farmers (10 minutes).

The facilitator asks participants to describe what to do while earthing up, to ensure good stolons.

3. The facilitator after the presentations are over will invite questions from the trainees, and will give answers. Finally, the facilitator will become sure whether the trainees could understand the clarifications by asking them about the replies (13 minutes).
4. At the end the facilitator and the Moderator will end the session by thanking the participants (2 minutes). Distribute handout

## **Session No. 2: Land preparation, fertilizer application, placement of seed potato in furrows, spacing requirements for production of big size potato for export**

**Objective of the session:** At the end of the session, the trainees will be able to learn

- Best method of land preparation in order to obtain derived yield.
- Fertilizer requirements pr acre and best method of fertilizer application.

**Materials needed:** Flip Chart, chalk board with chalk and duster, Pointing stick, colored pictures.

**Duration :** 45 minutes

**Step-wise conduct of the session**

1. The facilitator will introduce himself by starting his background and relation/experience in the related field. Then he will be oriented with the trainees by asking their identities and involvement in the field, the facilitator may ask for their interest in knowing about the topics ( 5minutes)
2. The facilitator will introduce the topics by starting about the various parts of a potato plant and their function in relation to production of potatoes (15 minutes) by showing the picture through flip chart and will explain details to the farmers (10 minutes).
3. The facilitator after the presentations are over will invite questions from the trainees, and will give answers. Finally, the facilitator will become sure whether the trainees could understand the clarifications by asking them about the replies (13 minutes).
4. At the end the facilitator and the Moderator will end the session by thanking the participants (2 minutes).

**Session No. 3: Potato varieties, for planting, sprouting (dormancy breaking) and cutting into pieces to minimize seed cost and uneven germination (to be demonstrated)**

**Objective:** At the end of the session, the trainees will be able to learn

- Selection of variety and seed (certified & truthfully labeled) have to be arranged well ahead of planting.
- Best method of preparation of seed.

Materials needed: Flip Chart, chalk board with chalk and duster, Pointing stick, colored pictures.

Duration : 45 minutes

Step-wise conduct of the session

5. The facilitator will introduce himself by starting his background and relation/experience in the related field. Then he will be oriented with the trainees by asking their identities and involvement in the field, the facilitator may ask for their interest in knowing about the topics ( 5minutes)
6. The facilitator will introduce the topics by starting about the various parts of a potato plant and their function in relation to production of potatoes (15 minutes) by showing the picture through flip chart and will explain details to the farmers (10 minutes).
7. The facilitator after the presentations are over will invite questions from the trainees, and will give answers. Finally, the facilitator will become sure whether the trainees could understand the clarifications by asking them about the replies (13 minutes).
8. At the end the facilitator and the Moderator will end the session by thanking the participants (2 minutes).

**Session No. 4: Practical demonstration in the field and discussion (Land preparation, fertilizer application in bands, preparation of seed potato, placement of seed in furrows.)**

Objective of session : At the end of the session, the trainees will be able to learn.

- (1) Best method of export quality potato production
  - (a) Due to proper land preparation.
  - (b) Due to use of quality seeds to seed preparation.
  - (c) Due to use of recommended fertilizer doses.
  - (d) Due to application of recommended row to row spacing and seed to seed spacing.

Materials needed: Demonstration plot/ Neighboring Plot, seeds, fertilizers and related equipments.

Duration: 90 minutes.

Special instruction, if any: Concerned Lead Farmer and CF- Co-ordinator will guide the trainees to visit demonstration trial field. Potato consultant and co-ordinator, will supervise the activities and assist LF and CF-Co-ordinator as & when necessary.

Stepwise Conduct of the visit:

1. The facilitators will introduce themselves by starting their background and relation/experience in the related field. Then he will be oriented with the trainees by asking their identities and involvement in the field (10 minutes).
2. The facilitator and CF-Co-ordinator explain the objective of demonstration plots (10 minutes).
3. They will explain in details: Use of quality seed source & generations, seed preparation, fertilizers doses, band placement of fertilizer, spacing & other cultural practices (50 minutes).
4. The facilitator after the presentations are over will invite questions from the trainees and will give answers. Finally, the facilitators will become sure that the trainees could understand the clarifications by asking them about the replies. (15 minutes)
5. At the end the facilitators and the moderators will end the session by thanking the participants. (5 minutes)

## Topics 1: Botanical description of a potato plant and its various parts

A potato plant comprises of stem, leaf, roots, stolon, flower, fruit and tuber.

**Stem:** The stem above the ground is erect in the beginning but becomes spreading and prostrate later on. It may attain a height of one & half to three feet or more and develop a number of axillary branches. Stems are basically cylindrical. Plants are succulent. While working in the field, care must be taken so that the plants are not injured.

**Roots:** The root system of potato is basically fibrous. The root system remains mainly within one foot of soil and may extend laterally for about 2 feet or more. Therefore while undertaking intercultural operations, care must be taken so that the roots are not damaged.

**Leaf:** The leaves are usually oval, pubescent and have margins, entire or serrate. The leaves are succulent and can manufacture food. When the plant attains height of about 15-25 cm, plant along with leaves fall slowly in the ground. During earthing up and working in the field, spl. care should be taken so that the leaves are not covered with soil.

**Stolons:** The appearance of the stolons usually takes place within about 10-15 days after the emergence of plant above ground. It may vary from variety to variety. The length of the stolons may vary from 10-30 cm. While earthing up, care must be taken so that the stolons are covered properly.

**Tuber:** Tuber is an underground, modified fleshy stem having eyes i.e. buds, in the axils of scaly leaves. This results from the swelling of the apical areas of the creeping stolon that emerge from the sub-terrestrial region of the stem and extends laterally. The shape of the tubers are round, oval, round oval, large oval, oblong, flat or sometimes tapering at the heel end. While harvesting, care must be taken so that the tubers are not cut or injured.

**Sprouts:** After breaking of dormancy, sprouting starts. The color of the sprouts is white, violet, yellowish white and bluish.

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## Topics 2: Land preparation, fertilizer doses, application, placement of seed potato in furrows, spacing requirements for production of big size potatoes for export

**Land preparation:** Land is required to be ploughed over and over again, as well as laddered in order to obtain a good tilth. Since potatoes form underground tubers, deep ploughing helps the crop considerably.

### Fertilizers requirements and application:

The following doses of manures and fertilizers are to be applied.

	Per acre dose	Application
a) Well rotten cow dung	4000 kg	Entire portion of CD are to be
b) Urea	100-140 kg	applied during land preparation.
c) TSP	80-90 kg	Micronutrients like boric acid, zinc
d) M/K	100-130 kg	sulphate, gypsum and magnesium

Besides micronutrients like

a) Boric acid	2-3 kg	sulphate are to be applied at the last ploughing and laddeing. Half urea, half MOP and full TSP are to be applied in bands at the time of planting.
b) Zinc SO <sub>4</sub>	3-4 kg	
c) Gypsum	20-30 kg	
d) Mg <sub>2</sub> SO <sub>4</sub>	15-20 kg	

### **Band Placement**

For timely availability and for proper utilization of nutrients, fertilizers are to be placed in Bands. Placement of seed potatoes and fertilizers in band system is shown at fig.1.

### **Spacing requirement for export quality potato production**

Row to row= 60 cm

Seed piece to seed piece= 20-25 cm

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## **Topics 3: Potato varieties, arrangement of seeds, seed preparation**

**Selection of variety:** To obtain quality potatoes for export, Granola and Diamant variety are to be selected.

**Arrangement of seeds:** Quality seed plays an important role to obtain high yield. Prior arrangement of certified or truthfully labeled seed potatoes from reliable sources are to be made at least 7-15 days before planting.

**Preparation of seeds:** Seed potatoes are to be kept in the preheating chamber (15°C) for about 48 to 60 hours, after that farming, sorting are to be done properly. Then the seed potatoes are to be kept in a suitable place for pre sprouting for about 10-15 days depending upon the variety. Granola variety needs at least 15 days for pre sprouting where as Diamant variety needs 7 to 8 days only.

Top sprouts are to be removed for uniform sprouting of other sprouts. After pre sprouting, the seed potatoes are to be cut in the following way for export quality potato production.

30-35 mm size seed potatoes one cut i.e. two pieces

35-45 mm size seed potatoes can be cut into 2-3 pieces

45-55 mm size seed potatoes can be cut into 3-4 pieces

Care must be taken so that each seed piece must have at least two eyes.

**Placement of seed piece:** The seed pieces are to be placed in the furrows in such a way so that the cut portion remains beneath the soil for normal germination. In the furrow system of planting, seed pieces are to be placed 3-4 inches deep and to be covered by loose soil.